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| Journal Name: | [**Asian Journal of Medical Principles and Clinical Practice**](https://journalajmpcp.com/index.php/AJMPCP) |
| Manuscript Number: | **Ms\_AJMPCP\_136808** |
| Title of the Manuscript: | **HARNESSING DIGITAL TWINS: REVOLUTIONIZING THE PHARMACEUTICAL INDUSTRY** |
| Type of the Article | Narrative review |

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | The topic is relevant and quite timely. The manuscript gives a decent overview of how digital twins are being used in pharma.  However, the writing feels more descriptive than analytical, and the methodology needs better clarity.  With stronger academic framing and deeper critical insight, this could be much more impactful.  Reproducibility is also questionable. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | Not very apt - consider :Digital Twins in Pharmaceuticals: A Narrative Review of Applications, Benefits, and Real-World Use Cases or simply put “Digital Twins in Pharma: A Narrative Review with Industry Case Insights” |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract covers the general intent and areas of application but lacks academic sharpness. There is no mention of the review method’s limitations, the number or type of sources considered, or how the thematic insights were derived. It also doesn’t clarify that this is a narrative (not systematic) review, which may mislead readers.  I recommend clearly stating the rationale of how sources were selected, and briefly outline the structure or framework used for analysis. |  |
| Is the manuscript scientifically, correct? Please write here. | The manuscript is broadly scientifically correct in terms of concepts and examples—it accurately describes how digital twins are applied across pharmaceutical domains. However, it lacks critical depth and scientific framing. The use cases are real but are presented without much analysis, triangulation, or discussion of limitations. There's also a risk of overgeneralization, as most claims are based on a handful of industry-led examples. The science is not wrong, but it's not rigorously examined either. Can be better |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are mostly recent (2020–2024) and relevant to the topic, which is a strength. However, the balance between peer-reviewed sources and grey literature is uneven—nearly 40% are corporate websites or press releases. This weakens the academic weight of the manuscript. The authors should include more high-quality, peer-reviewed studies from journals in health informatics, pharmaceutical innovation, or systems engineering to support broader claims. (method says 2020- 2024 , but ofcourse authors have used 2025 ref - to be sorted)  consider citing below (if not cited) - these are some of most cited papers  Fischer, R., Volpert, A., Antonino, P., & Ahrens, T. D. (2024). Digital patient twins for personalized therapeutics and pharmaceutical manufacturing. *Frontiers in Digital Health*, 5, 1302338.<https://doi.org/10.3389/fdgth.2023.1302338>  Chen, Y., Yang, O., Sampat, C., Bhalode, P., Ramachandran, R., & Ierapetritou, M. (2020). Digital Twins in Pharmaceutical and Biopharmaceutical Manufacturing: A Literature Review. Processes. <https://doi.org/10.3390/pr8091088>  Cellina, M., Ce’, M., Alì, M., Irmici, G., Ibba, S., Caloro, E., Fazzini, D., Oliva, G., & Papa, S. (2023). Digital Twins: The New Frontier for Personalized Medicine?. *Applied Sciences*. <https://doi.org/10.3390/app13137940>.  Laubenbacher, R., Mehrad, B., Shmulevich, I., & Trayanova, N. (2024). Digital twins in medicine. Nature computational science, 4 3, 184-191 . <https://doi.org/10.1038/s43588-024-00607-6>.  Boulos, M., & Zhang, P. (2021). Digital Twins: From Personalised Medicine to Precision Public Health. *Journal of Personalized Medicine*, 11. <https://doi.org/10.3390/jpm11080745>. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The language is generally understandable, but it lacks the precision and tone expected in scholarly writing. Some sections read more like promotional content or internal reports rather than academic narrative |  |
| Optional/General comments |  |  |

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| **PART 2:** | | |
|  | Reviewer’s comment | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in detail)* |  |

**Reviewer Details:**

**Thamburaj Anthuvan, SB Patil Institute of Management, India**